



SEQUENCE LISTING

<110> ASHTON-RICKARDT, PHILIP

<120> METHODS AND COMPOSITIONS FOR THE INHIBITION OF
CATHEPSINS

<130> ARCD:390US

<140> 10/782,401

<141> 2004-02-19

<150> 60/448,285

<151> 2003-02-19

<160> 25

<170> PatentIn Ver. 2.1

<210> 1

<211> 1323

<212> DNA

<213> Mus musculus

<400> 1

```
atggctggtg tctcccctgc tgtctttggc tgcccagatg tcaccctggg aaggaacact 60
gcagtccgtg aagtacaaga aaatgtcaca tcagtggaca gtttaacact ggtctccagc 120
aacactgact ttgccttcag cctctacagg aagctggttt tgaagaatcc agatgaaaat 180
gttgtcttct cccatttcag catctgcact gccttggccc tcctgtccct gggagcaaag 240
agcaacaccc tgaaggaaat cctagaaggt ctcaagttca acctcacaga gaccctgaa 300
ccagacatcc accagggctt taggtacttg ctagaccttc taagtcagcc agggaaccag 360
gtacagatca gcacaggcag tgccctgttt attgaaaagc acctacagat cctggcagag 420
ttcaaggaga aggcaagggc tctgtaccag gctgaggcct tcacagcaga tttccagcaa 480
cctctcaagg ccacaaagct catcaatgac tatgtgagca atcacacca ggggaagatc 540
aaggaactca tctcaggcct gaaagagagc acgttgatgg tgctggtgaa ctacatctac 600
tttaaaggca aatggaagaa cccctttgac ccgaatgata catttaagtc cgagttctac 660
ttggatgaga agaggtctgt gattgtgtcc atgatgaaaa ctggttacct gacgacaccc 720
tacttccggg atgaggagct gtcctgcact gtggtggagc tgaagtacac aggaaatgcc 780
agtgccatgt tcacctccc tgaccagggc aggatgcagc aggtggaagc aagcttacia 840
ccagagaccc tgaggaagtg gaagaactct ctgaagccca ggatgatata tgagctccgc 900
ctgcccgaag tctccatctc caccgactat agcctggagc acatccttcc tgagttgggc 960
atcaggggaag tcttctccac acacgctgac ctgtctgcaa tcacaggaac taaggatctg 1020
agagtctctc aggtggtcca caaggctgtg ctggatgtgg ctgagaaagg cacagaggct 1080
gctgctgcca caggaatggc aggtgtcggg tgttgatgag tttttgactt tctggaaata 1140
tttttcaaca ggccattcct gatgattatc tctgacacaa aagctcacat tgccctcttt 1200
atggcaaaaag ttacaaatcc agagagatct acgaacttcc caaatggtga ggggtgcttc 1260
tccaacggc tggaatctaa gcgtttatgt tttggtgatc cgctatgcct gattggacag 1320
tga
```

<210> 2

<211> 440

<212> PRT

<213> Mus musculus

<400> 2

Met Ala Gly Val Ser Pro Ala Val Phe Gly Cys Pro Asp Val Thr Leu

1	5	10	15
Gly Arg Asn Thr Ala Val Arg Glu Val Gln Glu Asn Val Thr Ser Val	20	25	30
Asp Ser Leu Thr Leu Val Ser Ser Asn Thr Asp Phe Ala Phe Ser Leu	35	40	45
Tyr Arg Lys Leu Val Leu Lys Asn Pro Asp Glu Asn Val Val Phe Ser	50	55	60
Pro Phe Ser Ile Cys Thr Ala Leu Ala Leu Leu Ser Leu Gly Ala Lys	65	70	75
Ser Asn Thr Leu Lys Glu Ile Leu Glu Gly Leu Lys Phe Asn Leu Thr	85	90	95
Glu Thr Pro Glu Pro Asp Ile His Gln Gly Phe Arg Tyr Leu Leu Asp	100	105	110
Leu Leu Ser Gln Pro Gly Asn Gln Val Gln Ile Ser Thr Gly Ser Ala	115	120	125
Leu Phe Ile Glu Lys His Leu Gln Ile Leu Ala Glu Phe Lys Glu Lys	130	135	140
Ala Arg Ala Leu Tyr Gln Ala Glu Ala Phe Thr Ala Asp Phe Gln Gln	145	150	155
Pro Leu Lys Ala Thr Lys Leu Ile Asn Asp Tyr Val Ser Asn His Thr	165	170	175
Gln Gly Lys Ile Lys Glu Leu Ile Ser Gly Leu Lys Glu Ser Thr Leu	180	185	190
Met Val Leu Val Asn Tyr Ile Tyr Phe Lys Gly Lys Trp Lys Asn Pro	195	200	205
Phe Asp Pro Asn Asp Thr Phe Lys Ser Glu Phe Tyr Leu Asp Glu Lys	210	215	220
Arg Ser Val Ile Val Ser Met Met Lys Thr Gly Tyr Leu Thr Thr Pro	225	230	235
Tyr Phe Arg Asp Glu Glu Leu Ser Cys Thr Val Val Glu Leu Lys Tyr	245	250	255
Thr Gly Asn Ala Ser Ala Met Phe Ile Leu Pro Asp Gln Gly Arg Met	260	265	270
Gln Gln Val Glu Ala Ser Leu Gln Pro Glu Thr Leu Arg Lys Trp Lys	275	280	285
Asn Ser Leu Lys Pro Arg Met Ile His Glu Leu Arg Leu Pro Lys Phe	290	295	300
Ser Ile Ser Thr Asp Tyr Ser Leu Glu His Ile Leu Pro Glu Leu Gly			

305		310		315		320
Ile Arg Glu Val Phe Ser Thr His Ala Asp Leu Ser Ala Ile Thr Gly						
	325			330		335
Thr Lys Asp Leu Arg Val Ser Gln Val Val His Lys Ala Val Leu Asp						
	340		345			350
Val Ala Glu Lys Gly Thr Glu Ala Ala Ala Thr Gly Met Ala Gly						
	355		360			365
Val Gly Cys Cys Ala Val Phe Asp Phe Leu Glu Ile Phe Phe Asn Arg						
	370		375			380
Pro Phe Leu Met Ile Ile Ser Asp Thr Lys Ala His Ile Ala Leu Phe						
	385		390		395	400
Met Ala Lys Val Thr Asn Pro Glu Arg Ser Thr Asn Phe Pro Asn Gly						
	405			410		415
Glu Gly Ala Ser Ser Gln Arg Leu Glu Ser Lys Arg Leu Cys Phe Gly						
	420		425			430
Asp Pro Leu Cys Leu Ile Gly Gln						
	435		440			

<210> 3
 <211> 379
 <212> PRT
 <213> Homo sapiens

<400> 3
Met Glu Gln Leu Ser Ser Ala Asn Thr Arg Phe Ala Leu Asp Leu Phe
1 5 10 15
Leu Ala Leu Ser Glu Asn Asn Pro Ala Gly Asn Ile Phe Ile Ser Pro
20 25 30
Phe Ser Ile Ser Ser Ala Met Ala Met Val Phe Leu Gly Thr Arg Gly
35 40 45
Asn Thr Ala Ala Gln Leu Ser Lys Thr Phe His Phe Asn Thr Val Glu
50 55 60
Glu Val His Ser Arg Phe Gln Ser Leu Asn Ala Asp Ile Asn Lys Arg
65 70 75 80
Gly Ala Ser Tyr Ile Leu Lys Leu Ala Asn Arg Leu Tyr Gly Glu Lys
85 90 95
Thr Tyr Asn Phe Leu Pro Glu Phe Leu Val Ser Thr Gln Lys Thr Tyr
100 105 110
Gly Ala Asp Leu Ala Ser Val Asp Phe Gln His Ala Ser Glu Asp Ala
115 120 125

Arg Lys Thr Ile Asn Gln Trp Val Lys Gly Gln Thr Glu Gly Lys Ile
 130 135 140
 Pro Glu Leu Leu Ala Ser Gly Met Val Asp Asn Met Thr Lys Leu Val
 145 150 155 160
 Leu Val Asn Ala Ile Tyr Phe Lys Gly Asn Trp Lys Asp Lys Phe Met
 165 170 175
 Lys Glu Ala Thr Thr Asn Ala Pro Phe Arg Leu Asn Lys Lys Asp Arg
 180 185 190
 Lys Thr Val Lys Met Met Tyr Gln Lys Lys Lys Phe Ala Tyr Gly Tyr
 195 200 205
 Ile Glu Asp Leu Lys Cys Arg Val Leu Glu Leu Pro Tyr Gln Gly Glu
 210 215 220
 Glu Leu Ser Met Val Ile Leu Leu Pro Asp Asp Ile Glu Asp Glu Ser
 225 230 235 240
 Thr Gly Leu Lys Lys Ile Glu Glu Gln Leu Thr Leu Glu Lys Leu His
 245 250 255
 Glu Trp Thr Lys Pro Glu Asn Leu Asp Phe Ile Glu Val Asn Val Ser
 260 265 270
 Leu Pro Arg Phe Lys Leu Glu Glu Ser Tyr Thr Leu Asn Ser Asp Leu
 275 280 285
 Ala Arg Leu Gly Val Gln Asp Leu Phe Asn Ser Ser Lys Ala Asp Leu
 290 295 300
 Ser Gly Met Ser Gly Ala Arg Asp Ile Phe Ile Ser Lys Ile Val His
 305 310 315 320
 Lys Ser Phe Val Glu Val Asn Glu Glu Gly Thr Glu Ala Ala Ala Ala
 325 330 335
 Thr Ala Gly Ile Ala Thr Phe Cys Met Leu Met Pro Glu Glu Asn Phe
 340 345 350
 Thr Ala Asp His Pro Phe Leu Phe Phe Ile Arg His Asn Ser Ser Gly
 355 360 365
 Ser Ile Leu Phe Leu Gly Arg Phe Ser Ser Pro
 370 375

<210> 4

<211> 415

<212> PRT

<213> Homo sapiens

<400> 4

Met Glu Asp Leu Cys Val Ala Asn Thr Leu Phe Ala Leu Asn Leu Phe
 1 5 10 15

Lys	His	Leu	Ala	Lys	Ala	Ser	Pro	Thr	Gln	Asn	Leu	Phe	Leu	Ser	Pro	20	25	30
Trp	Ser	Ile	Ser	Ser	Thr	Met	Ala	Met	Val	Tyr	Met	Gly	Ser	Arg	Gly	35	40	45
Ser	Thr	Glu	Asp	Gln	Met	Ala	Lys	Val	Leu	Gln	Phe	Asn	Glu	Val	Gly	50	55	60
Ala	Asn	Ala	Val	Thr	Pro	Met	Thr	Pro	Glu	Asn	Phe	Thr	Ser	Cys	Gly	65	70	75
Phe	Met	Gln	Gln	Ile	Gln	Lys	Gly	Ser	Tyr	Pro	Asp	Ala	Ile	Leu	Gln	85	90	95
Ala	Gln	Ala	Ala	Asp	Lys	Ile	His	Ser	Ser	Phe	Arg	Ser	Leu	Ser	Ser	100	105	110
Ala	Ile	Asn	Ala	Ser	Thr	Gly	Asn	Tyr	Leu	Leu	Glu	Ser	Val	Asn	Lys	115	120	125
Leu	Phe	Gly	Glu	Lys	Ser	Ala	Ser	Phe	Arg	Glu	Glu	Tyr	Ile	Arg	Leu	130	135	140
Cys	Gln	Lys	Tyr	Tyr	Ser	Ser	Glu	Pro	Gln	Ala	Val	Asp	Phe	Leu	Glu	145	150	155
Cys	Ala	Glu	Glu	Ala	Arg	Lys	Lys	Ile	Asn	Ser	Trp	Val	Lys	Thr	Gln	165	170	175
Thr	Lys	Gly	Lys	Ile	Pro	Asn	Leu	Leu	Pro	Glu	Gly	Ser	Val	Asp	Gly	180	185	190
Asp	Thr	Arg	Met	Val	Leu	Val	Asn	Ala	Val	Tyr	Phe	Lys	Gly	Lys	Trp	195	200	205
Lys	Thr	Pro	Phe	Glu	Lys	Lys	Leu	Asn	Gly	Leu	Tyr	Pro	Phe	Arg	Val	210	215	220
Asn	Ser	Ala	Gln	Arg	Thr	Pro	Val	Gln	Met	Met	Tyr	Leu	Arg	Glu	Lys	225	230	235
Leu	Asn	Ile	Gly	Tyr	Ile	Glu	Asp	Leu	Lys	Ala	Gln	Ile	Leu	Glu	Leu	245	250	255
Pro	Tyr	Ala	Gly	Asp	Val	Ser	Met	Phe	Leu	Leu	Leu	Pro	Asp	Glu	Ile	260	265	270
Ala	Asp	Val	Ser	Thr	Gly	Leu	Glu	Leu	Leu	Glu	Ser	Glu	Ile	Thr	Tyr	275	280	285
Asp	Lys	Leu	Asn	Lys	Trp	Thr	Ser	Lys	Asp	Lys	Met	Ala	Glu	Asp	Glu	290	295	300
Val	Glu	Val	Tyr	Ile	Pro	Gln	Phe	Lys	Leu	Glu	Glu	His	Tyr	Glu	Leu	305	310	315

Arg Ser Ile Leu Arg Ser Met Gly Met Glu Asp Ala Phe Asn Lys Gly
 325 330 335
 Arg Ala Asn Phe Ser Gly Met Ser Glu Arg Asn Asp Leu Phe Leu Ser
 340 345 350
 Glu Val Phe His Gln Ala Met Val Asp Val Asn Glu Glu Gly Thr Glu
 355 360 365
 Ala Ala Ala Gly Thr Gly Gly Val Met Thr Gly Arg Thr Gly His Gly
 370 375 380
 Gly Pro Gln Phe Val Ala Asp His Pro Phe Leu Phe Leu Ile Met His
 385 390 395 400
 Lys Ile Thr Asn Cys Ile Leu Phe Phe Gly Arg Phe Ser Ser Pro
 405 410 415

<210> 5
 <211> 390
 <212> PRT
 <213> Homo sapiens

<400> 5
 Met Asn Ser Leu Ser Glu Ala Asn Thr Lys Phe Met Phe Asp Leu Phe
 1 5 10 15
 Gln Gln Phe Arg Lys Ser Lys Glu Asn Asn Ile Phe Tyr Ser Pro Ile
 20 25 30
 Ser Ile Thr Ser Ala Leu Gly Met Val Leu Leu Gly Ala Lys Asp Asn
 35 40 45
 Thr Ala Gln Gln Ile Lys Lys Val Leu His Phe Asp Gln Val Thr Glu
 50 55 60
 Asn Thr Thr Gly Lys Ala Ala Thr Tyr His Val Asp Arg Ser Gly Asn
 65 70 75 80
 Val His His Gln Phe Gln Lys Leu Leu Thr Glu Phe Asn Lys Ser Thr
 85 90 95
 Asp Ala Tyr Glu Leu Lys Ile Ala Asn Lys Leu Phe Gly Glu Lys Thr
 100 105 110
 Tyr Leu Phe Leu Gln Glu Tyr Leu Asp Ala Ile Lys Lys Phe Tyr Gln
 115 120 125
 Thr Ser Val Glu Ser Val Asp Phe Ala Asn Ala Pro Glu Glu Ser Arg
 130 135 140
 Lys Lys Ile Asn Ser Trp Val Glu Ser Gln Thr Asn Glu Lys Ile Lys
 145 150 155 160
 Asn Leu Ile Pro Glu Gly Asn Ile Gly Ser Asn Thr Thr Leu Val Leu

165					170					175					
Val	Asn	Ala	Ile	Tyr	Phe	Lys	Gly	Gln	Trp	Glu	Lys	Lys	Phe	Asn	Lys
			180					185					190		
Glu	Asp	Thr	Lys	Glu	Glu	Lys	Phe	Trp	Pro	Asn	Lys	Asn	Thr	Tyr	Lys
		195					200					205			
Ser	Ile	Gln	Met	Met	Arg	Gln	Tyr	Thr	Ser	Phe	His	Phe	Ala	Ser	Leu
	210					215					220				
Glu	Asp	Val	Gln	Ala	Lys	Val	Leu	Glu	Ile	Pro	Tyr	Lys	Gly	Lys	Asp
225					230					235					240
Leu	Ser	Met	Ile	Val	Leu	Leu	Pro	Asn	Glu	Ile	Asp	Gly	Leu	Gln	Lys
				245					250					255	
Leu	Glu	Glu	Lys	Leu	Thr	Ala	Glu	Lys	Leu	Met	Glu	Trp	Thr	Ser	Leu
			260					265					270		
Gln	Asn	Met	Arg	Glu	Thr	Arg	Val	Asp	Leu	His	Leu	Pro	Arg	Phe	Lys
		275					280					285			
Val	Glu	Glu	Ser	Tyr	Asp	Leu	Lys	Asp	Thr	Leu	Arg	Thr	Met	Gly	Met
	290					295					300				
Val	Asp	Ile	Phe	Asn	Gly	Asp	Ala	Asp	Leu	Ser	Gly	Met	Thr	Gly	Ser
305					310					315					320
Arg	Gly	Leu	Val	Leu	Ser	Gly	Val	Leu	His	Lys	Ala	Phe	Val	Glu	Val
				325					330					335	
Thr	Glu	Glu	Gly	Ala	Glu	Ala	Ala	Ala	Ala	Thr	Ala	Val	Val	Gly	Phe
			340					345					350		
Gly	Ser	Ser	Pro	Thr	Ser	Thr	Asn	Glu	Glu	Phe	His	Cys	Asn	His	Pro
		355					360					365			
Phe	Leu	Phe	Phe	Ile	Arg	Gln	Asn	Lys	Thr	Asn	Ser	Ile	Leu	Phe	Tyr
	370					375					380				
Gly	Arg	Phe	Ser	Ser	Pro										
385					390										

<210> 6

<211> 390

<212> PRT

<213> Homo sapiens

<400> 6

Met	Asn	Ser	Leu	Ser	Glu	Ala	Asn	Thr	Lys	Phe	Met	Phe	Asp	Leu	Phe
1				5					10					15	

Gln	Gln	Phe	Arg	Lys	Ser	Lys	Glu	Asn	Asn	Ile	Phe	Tyr	Ser	Pro	Ile
			20					25					30		

Ser Ile Thr Ser Ala Leu Gly Met Val Leu Leu Gly Ala Lys Asp Asn
 35 40 45
 Thr Ala Gln Gln Ile Ser Lys Val Leu His Phe Asp Gln Val Thr Glu
 50 55 60
 Asn Thr Thr Glu Lys Ala Ala Thr Tyr His Val Asp Arg Ser Gly Asn
 65 70 75 80
 Val His His Gln Phe Gln Lys Leu Leu Thr Glu Phe Asn Lys Ser Thr
 85 90 95
 Asp Ala Tyr Glu Leu Lys Ile Ala Asn Lys Leu Phe Gly Glu Lys Thr
 100 105 110
 Tyr Gln Phe Leu Gln Glu Tyr Leu Asp Ala Ile Lys Lys Phe Tyr Gln
 115 120 125
 Thr Ser Val Glu Ser Thr Asp Phe Ala Asn Ala Pro Glu Glu Ser Arg
 130 135 140
 Lys Lys Ile Asn Ser Trp Val Glu Ser Gln Thr Asn Glu Lys Ile Lys
 145 150 155 160
 Asn Leu Phe Pro Asp Gly Thr Ile Gly Asn Asp Thr Thr Leu Val Leu
 165 170 175
 Val Asn Ala Ile Tyr Phe Lys Gly Gln Trp Glu Asn Lys Phe Lys Lys
 180 185 190
 Glu Asn Thr Lys Glu Glu Lys Phe Trp Pro Asn Lys Asn Thr Tyr Lys
 195 200 205
 Ser Val Gln Met Met Arg Gln Tyr Asn Ser Phe Asn Phe Ala Leu Leu
 210 215 220
 Glu Asp Val Gln Ala Lys Val Leu Glu Ile Pro Tyr Lys Gly Lys Asp
 225 230 235 240
 Leu Ser Met Ile Val Leu Leu Pro Asn Glu Ile Asp Gly Leu Gln Lys
 245 250 255
 Leu Glu Glu Lys Leu Thr Ala Glu Lys Leu Met Glu Trp Thr Ser Leu
 260 265 270
 Gln Asn Met Arg Glu Thr Cys Val Asp Leu His Leu Pro Arg Phe Lys
 275 280 285
 Met Glu Glu Ser Tyr Asp Leu Lys Asp Thr Leu Arg Thr Met Gly Met
 290 295 300
 Val Asn Ile Phe Asn Gly Asp Ala Asp Leu Ser Gly Met Thr Trp Ser
 305 310 315 320
 His Gly Leu Ser Val Ser Lys Val Leu His Lys Ala Phe Val Glu Val
 325 330 335

Thr Glu Glu Gly Val Glu Ala Ala Ala Ala Thr Ala Val Val Val Val
340 345 350

Glu Leu Ser Ser Pro Ser Thr Asn Glu Glu Phe Cys Cys Asn His Pro
355 360 365

Phe Leu Phe Phe Ile Arg Gln Asn Lys Thr Asn Ser Ile Leu Phe Tyr
370 375 380

Gly Arg Phe Ser Ser Pro
385 390

<210> 7
<211> 376
<212> PRT
<213> Homo sapiens

<400> 7
Met Asp Val Leu Ala Glu Ala Asn Gly Thr Phe Ala Leu Asn Leu Leu
1 5 10 15

Lys Thr Leu Gly Lys Asp Asn Ser Lys Asn Val Phe Phe Ser Pro Met
20 25 30

Ser Met Ser Cys Ala Leu Ala Met Val Tyr Met Gly Ala Lys Gly Asn
35 40 45

Thr Ala Ala Gln Met Ala Gln Ile Leu Ser Phe Asn Lys Ser Gly Gly
50 55 60

Gly Gly Asp Ile His Gln Gly Phe Gln Ser Leu Leu Thr Glu Val Asn
65 70 75 80

Lys Thr Gly Thr Gln Tyr Leu Leu Arg Val Ala Asn Arg Leu Phe Gly
85 90 95

Glu Lys Ser Cys Asp Phe Leu Ser Ser Phe Arg Asp Ser Cys Gln Lys
100 105 110

Phe Tyr Gln Ala Glu Met Glu Glu Leu Asp Phe Ile Ser Ala Val Glu
115 120 125

Lys Ser Arg Lys His Ile Asn Thr Trp Val Ala Glu Lys Thr Glu Gly
130 135 140

Lys Ile Ala Glu Leu Leu Ser Pro Gly Ser Val Asp Pro Leu Thr Arg
145 150 155 160

Leu Val Leu Val Asn Ala Val Tyr Phe Arg Gly Asn Trp Asp Gly Gln
165 170 175

Phe Asp Lys Glu Asn Thr Glu Glu Arg Leu Phe Lys Val Ser Lys Asn
180 185 190

Glu Glu Lys Pro Val Gln Met Met Phe Lys Gln Ser Thr Phe Lys Lys
195 200 205

Thr Tyr Ile Gly Glu Ile Phe Thr Gln Ile Leu Val Leu Pro Tyr Val
 210 215 220
 Gly Lys Glu Leu Asn Met Ile Ile Met Leu Pro Asp Glu Thr Thr Asp
 225 230 235 240
 Leu Arg Thr Val Glu Lys Glu Leu Thr Tyr Glu Lys Phe Val Glu Trp
 245 250 255
 Thr Arg Leu Asp Met Met Asp Glu Glu Glu Val Glu Val Ser Leu Pro
 260 265 270
 Arg Phe Lys Leu Glu Glu Ser Tyr Asp Met Glu Ser Val Leu Arg Asn
 275 280 285
 Leu Gly Met Thr Asp Ala Phe Glu Leu Gly Lys Ala Asp Phe Ser Gly
 290 295 300
 Met Ser Gln Thr Asp Leu Ser Leu Ser Lys Val Val His Lys Ser Phe
 305 310 315 320
 Val Glu Val Asn Glu Glu Gly Thr Glu Ala Ala Ala Ala Thr Ala Ala
 325 330 335
 Ile Met Met Met Arg Cys Ala Arg Phe Val Pro Arg Phe Cys Ala Asp
 340 345 350
 His Pro Phe Leu Phe Phe Ile Gln His Arg Lys Thr Asn Gly Ile Leu
 355 360 365
 Phe Cys Gly Arg Phe Ser Ser Pro
 370 375

<210> 8
 <211> 374
 <212> PRT
 <213> Homo sapiens

<400> 8
 Met Asp Asp Leu Cys Glu Ala Asn Gly Thr Phe Ala Ile Ser Leu Phe
 1 5 10 15
 Lys Ile Leu Gly Glu Glu Asp Asn Ser Arg Asn Val Phe Phe Ser Pro
 20 25 30
 Met Ser Ile Ser Ser Ala Leu Ala Met Val Phe Met Gly Ala Lys Gly
 35 40 45
 Ser Thr Ala Ala Gln Met Ser Gln Ala Leu Cys Leu Tyr Lys Asp Gly
 50 55 60
 Asp Ile His Arg Gly Phe Gln Ser Leu Leu Ser Glu Val Asn Arg Thr
 65 70 75 80
 Gly Thr Gln Tyr Leu Leu Arg Thr Ala Asn Arg Leu Phe Gly Glu Lys

85							90							95																
Thr	Cys	Asp	Phe	Leu	Pro	Asp	Phe	Lys	Glu	Tyr	Cys	Gln	Lys	Phe	Tyr															
			100					105					110																	
Gln	Ala	Glu	Leu	Glu	Glu	Leu	Ser	Phe	Ala	Glu	Asp	Thr	Glu	Glu	Cys															
		115					120					125																		
Arg	Lys	His	Ile	Asn	Asp	Trp	Val	Ala	Glu	Lys	Thr	Glu	Gly	Lys	Ile															
	130					135					140																			
Ser	Glu	Val	Leu	Asp	Ala	Gly	Thr	Val	Asp	Pro	Leu	Thr	Lys	Leu	Val															
145					150				155						160															
Leu	Val	Asn	Ala	Ile	Tyr	Phe	Lys	Gly	Lys	Trp	Asn	Glu	Gln	Phe	Asp															
				165					170					175																
Arg	Lys	Tyr	Thr	Arg	Gly	Met	Leu	Phe	Lys	Thr	Asn	Glu	Glu	Lys	Lys															
			180					185					190																	
Thr	Val	Gln	Met	Met	Phe	Lys	Glu	Ala	Lys	Phe	Lys	Met	Gly	Tyr	Ala															
		195					200					205																		
Asp	Glu	Val	His	Thr	Gln	Val	Leu	Glu	Leu	Pro	Tyr	Val	Glu	Glu	Glu															
	210					215				220																				
Leu	Ser	Met	Val	Ile	Leu	Leu	Pro	Asp	Asp	Asn	Thr	Asp	Leu	Ala	Val															
225					230				235					240																
Val	Glu	Lys	Ala	Leu	Thr	Tyr	Glu	Lys	Phe	Lys	Ala	Trp	Thr	Asn	Ser															
				245					250					255																
Glu	Lys	Leu	Thr	Lys	Ser	Lys	Val	Gln	Val	Phe	Leu	Pro	Arg	Leu	Lys															
			260					265					270																	
Leu	Glu	Glu	Ser	Tyr	Asp	Leu	Glu	Pro	Phe	Leu	Arg	Arg	Leu	Gly	Met															
	275					280					285																			
Ile	Asp	Ala	Phe	Asp	Glu	Ala	Lys	Ala	Asp	Phe	Ser	Gly	Met	Ser	Thr															
	290					295					300																			
Glu	Lys	Asn	Val	Pro	Leu	Ser	Lys	Val	Ala	His	Lys	Cys	Phe	Val	Glu															
305					310				315					320																
Val	Asn	Glu	Glu	Gly	Thr	Glu	Ala	Ala	Ala	Ala	Thr	Ala	Val	Val	Arg															
				325				330					335																	
Asn	Ser	Arg	Cys	Ser	Arg	Met	Glu	Pro	Arg	Phe	Cys	Ala	Asp	His	Pro															
		340					345						350																	
Phe	Leu	Phe	Phe	Ile	Arg	Arg	His	Lys	Thr	Asn	Cys	Ile	Leu	Phe	Cys															
	355					360						365																		
Gly	Arg	Phe	Ser	Ser	Pro																									
	370																													

<210> 9
 <211> 376
 <212> PRT
 <213> Homo sapiens

<400> 9

Met	Glu	Thr	Leu	Ser	Asn	Ala	Ser	Gly	Thr	Phe	Ala	Ile	Arg	Leu	Leu
1				5				10						15	
Lys	Ile	Leu	Cys	Gln	Asp	Asn	Pro	Ser	His	Asn	Val	Phe	Cys	Ser	Pro
			20					25					30		
Val	Ser	Ile	Ser	Ser	Ala	Leu	Ala	Met	Val	Leu	Leu	Gly	Ala	Lys	Gly
		35					40					45			
Asn	Thr	Ala	Thr	Gln	Met	Ala	Gln	Ala	Leu	Ser	Leu	Asn	Thr	Glu	Glu
	50					55					60				
Asp	Ile	His	Arg	Ala	Phe	Gln	Ser	Leu	Leu	Thr	Glu	Val	Asn	Lys	Ala
65					70					75					80
Gly	Thr	Gln	Tyr	Leu	Leu	Arg	Thr	Ala	Asn	Arg	Leu	Phe	Gly	Glu	Lys
				85					90					95	
Thr	Cys	Gln	Phe	Leu	Ser	Thr	Phe	Lys	Glu	Ser	Cys	Leu	Gln	Phe	Tyr
			100					105					110		
His	Ala	Glu	Leu	Lys	Glu	Leu	Ser	Phe	Ile	Arg	Ala	Ala	Glu	Glu	Ser
	115						120				125				
Arg	Lys	His	Ile	Asn	Thr	Trp	Val	Ser	Lys	Lys	Thr	Glu	Gly	Lys	Ile
	130					135					140				
Glu	Glu	Leu	Leu	Pro	Gly	Ser	Ser	Ile	Asp	Ala	Glu	Thr	Arg	Leu	Val
145					150					155					160
Leu	Val	Asn	Ala	Ile	Tyr	Phe	Lys	Gly	Lys	Trp	Asn	Glu	Pro	Phe	Asp
			165						170					175	
Glu	Thr	Tyr	Thr	Arg	Glu	Met	Pro	Phe	Lys	Ile	Asn	Gln	Glu	Glu	Gln
			180					185					190		
Arg	Pro	Val	Gln	Met	Met	Tyr	Gln	Glu	Ala	Thr	Phe	Lys	Leu	Ala	His
		195					200					205			
Val	Gly	Glu	Val	Arg	Ala	Gln	Leu	Leu	Glu	Leu	Pro	Tyr	Ala	Arg	Lys
	210					215					220				
Glu	Leu	Ser	Leu	Leu	Val	Leu	Leu	Pro	Asp	Asp	Gly	Val	Glu	Leu	Ser
225					230					235					240
Thr	Val	Glu	Lys	Ser	Leu	Thr	Phe	Glu	Lys	Leu	Thr	Ala	Trp	Thr	Lys
				245					250					255	
Pro	Asp	Cys	Met	Lys	Ser	Thr	Glu	Val	Glu	Val	Leu	Leu	Pro	Lys	Phe
			260					265					270		

Lys Leu Gln Glu Asp Tyr Asp Met Glu Ser Val Leu Arg His Leu Gly
 275 280 285
 Ile Val Asp Ala Phe Gln Gln Gly Lys Ala Asp Leu Ser Ala Met Ser
 290 295 300
 Ala Glu Arg Asp Leu Cys Leu Ser Lys Phe Val His Lys Ser Phe Val
 305 310 315 320
 Glu Val Asn Glu Glu Gly Thr Glu Ala Ala Ala Ala Ser Ser Cys Phe
 325 330 335
 Val Val Ala Glu Cys Cys Met Glu Ser Gly Pro Arg Phe Cys Ala Asp
 340 345 350
 His Pro Phe Leu Phe Phe Ile Arg His Asn Arg Ala Asn Ser Ile Leu
 355 360 365
 Phe Cys Gly Arg Phe Ser Ser Pro
 370 375

<210> 10
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic Peptide

<400> 10
 Met Ala Gly Val Gly Cys Cys Ala
 1 5

<210> 11
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic Peptide

<400> 11
 Phe Val Val Ala Glu Cys Cys Met
 1 5

<210> 12
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic

Peptide

<400> 12 aaccagagac cctgaggaag tg	22
<210> 13 <211> 17 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic Peptide	
<400> 13 aacttgggca ggcgcag	17
<210> 14 <211> 32 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic Peptide	
<400> 14 aagaactctc tgaagcccag gatgatacat ga	32
<210> 15 <211> 24 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic Peptide	
<400> 15 ccatcaaacc attccttctg tagc	24
<210> 16 <211> 23 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic Peptide	
<400> 16 agcagagatt acaggacatt gcg	23

<210> 17
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic Peptide

 <400> 17
 caggagagcg tgcctacccc atctg 25

 <210> 18
 <211> 32
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic Peptide

 <400> 18
 agaattcgcc accatggctg gtgtctcccc tg 32

 <210> 19
 <211> 38
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic Peptide

 <400> 19
 tgtggatcct ccctgtcaaa tcaggcagca tagcggat 38

 <210> 20
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic Peptide

 <400> 20
 gtgaattcat cactacttgt catcgt 26

 <210> 21
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 21

Asn Pro Glu Arg Ser Thr Asn Phe Pro Asn Gly Glu Gly Ala Ser Ser
1 5 10 15

Gln Arg

<210> 22

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 22

Ser Leu Gln Pro Glu Thr Leu Arg Lys Trp Lys Asn Ser Leu Lys Pro
1 5 10 15

Arg

<210> 23

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 23

Phe Gln Pro Gln Asn Gly Gln Phe Ile
1 5

<210> 24

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 24

Lys Ala Val Tyr Asn Phe Ala Thr Met
1 5

<210> 25
 <211> 11
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic
 Peptide

 <400> 25
 Ser Gly Val Glu Asn Pro Gly Gly Tyr Cys Leu
 1 5 10